

The roles of the SCAB Nominations and Activities systems in the ATLAS-CERN speakers selection

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Rafaella Lenzi Romano¹ and Rodrigo Coura Torres¹ on behalf of the ATLAS Computing Activity



[1]



[2]



- Introduction
- Challenges
- SCAB Nominations System
- Activities Management System
- Technical Details
- Next Steps
- References and Conclusion

The ATLAS Experiment at CERN



Groundbreaking research in physics and development of new technologies



More than 6000 active members



~250 institutes from ~40 countries

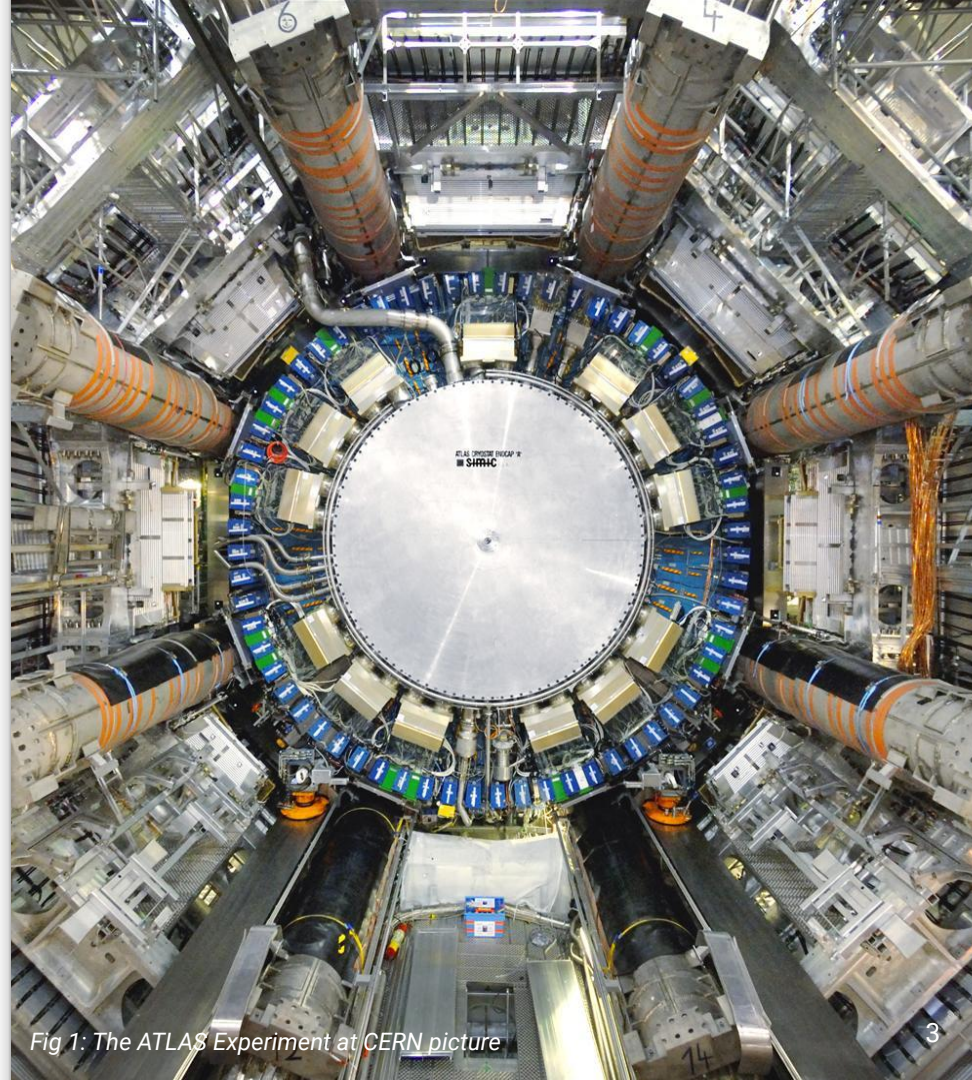


Fig 1: The ATLAS Experiment at CERN picture

The Glance Project



Streamlines the management of the experiment by **centralizing information** about people, activities and roles, and **automating processes**



In ATLAS, the Glance team provides interfaces to manage members, papers' submission, speaker selection, etc



The Challenge for Multiple Groups

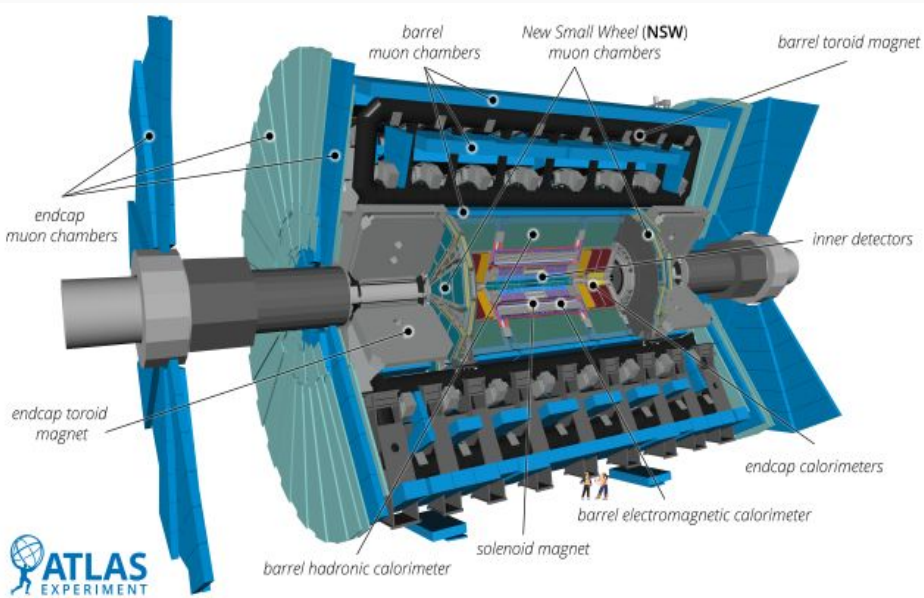


Fig 2: Schematic illustration of the ATLAS experiment with labels, including new systems installed during Long Shutdown 2 (LS2).
<https://cds.cern.ch/record/2837191>

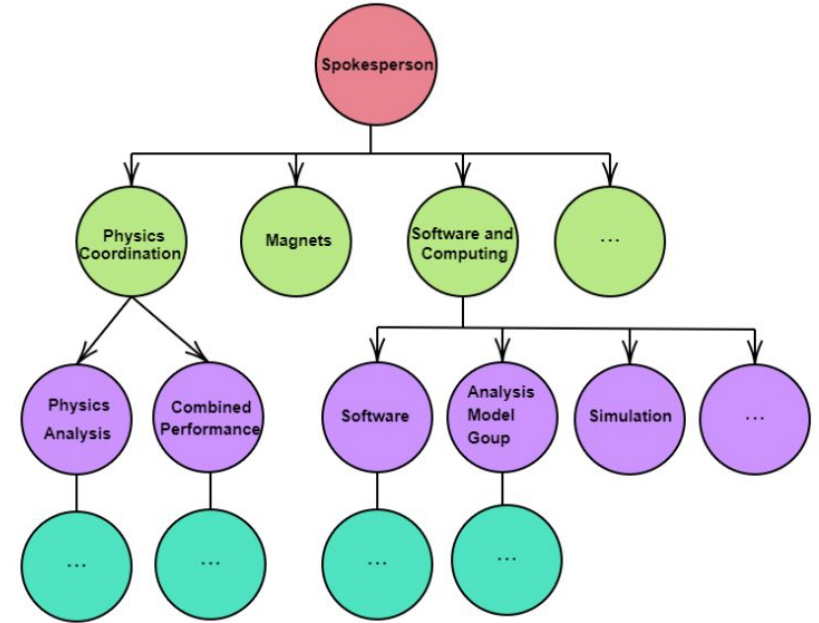
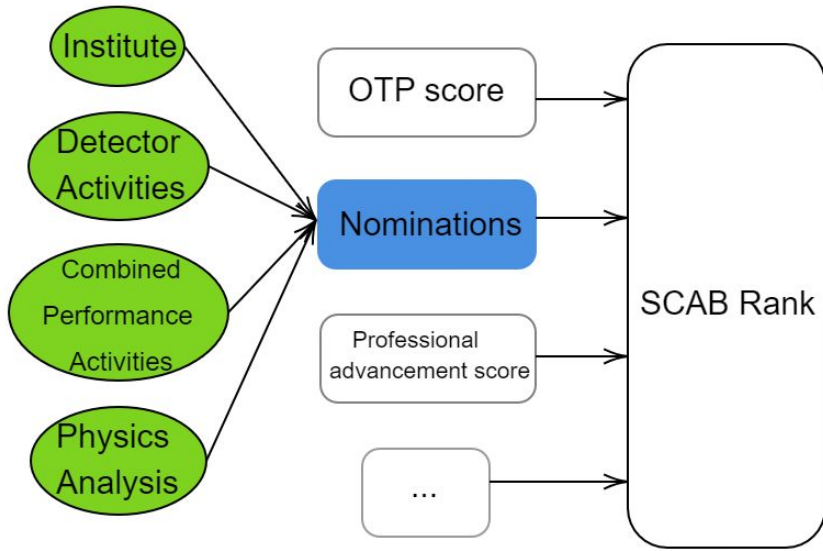


Fig 3: Schematic of the ATLAS Activities tree structure with examples.

The Challenge for Conference Talks

- ATLAS talks showcase the contributions of multiple members to the result
- Multiple members are qualified to present the same talk
- Guarantee that all of those who have worked on the project are well represented in the conferences
- Speakers Committee Advisory Board (SCAB) : Responsible for determining the ranking of ATLAS authors to be selected as speakers at international conferences

The path of a nomination

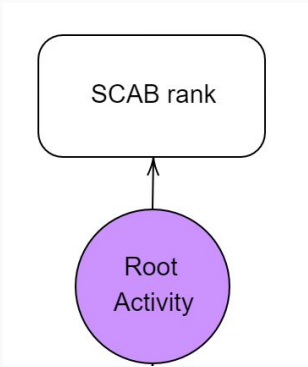


- For a member to be selected to present an ATLAS physics talk:
SCAB Rank
 - From 1 (highest) to 10 (lowest)
- **Nomination:**
 - Official suggestion for an ATLAS member to be given priority as a potential speaker
 - Come from many sources

The path of a nomination

- Each nomination:
 - Priority ranging from 1 (highest) to 5 (lowest)
 - Comment
- A single member can receive multiple nominations
- Start of the process:
 - At the Root Activity
 - At a Child Activity
 - As an Analysis Contact Nomination

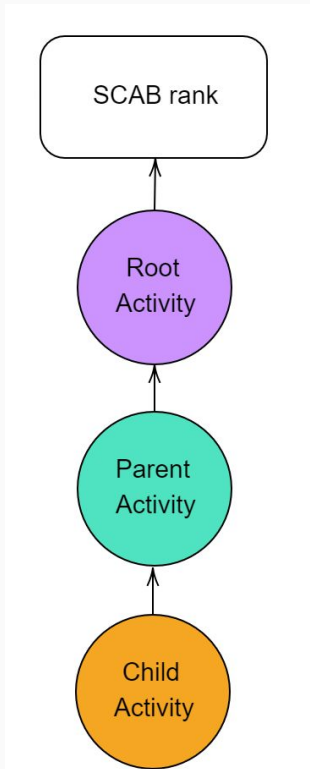
The path of a nomination



Physics Analysis

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The path of a nomination



Physics Analysis

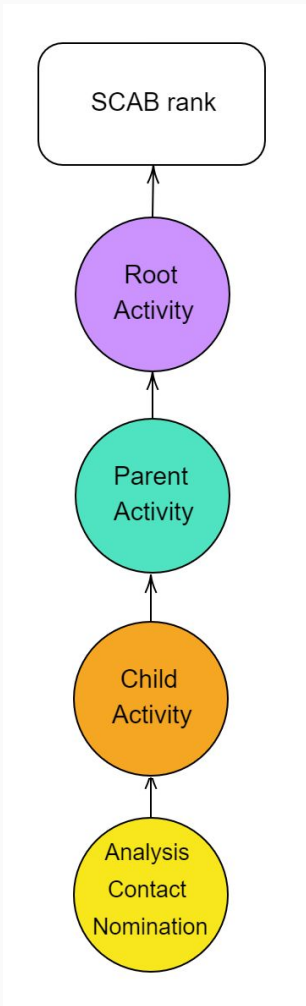
HIGG

Higgs to ZZ



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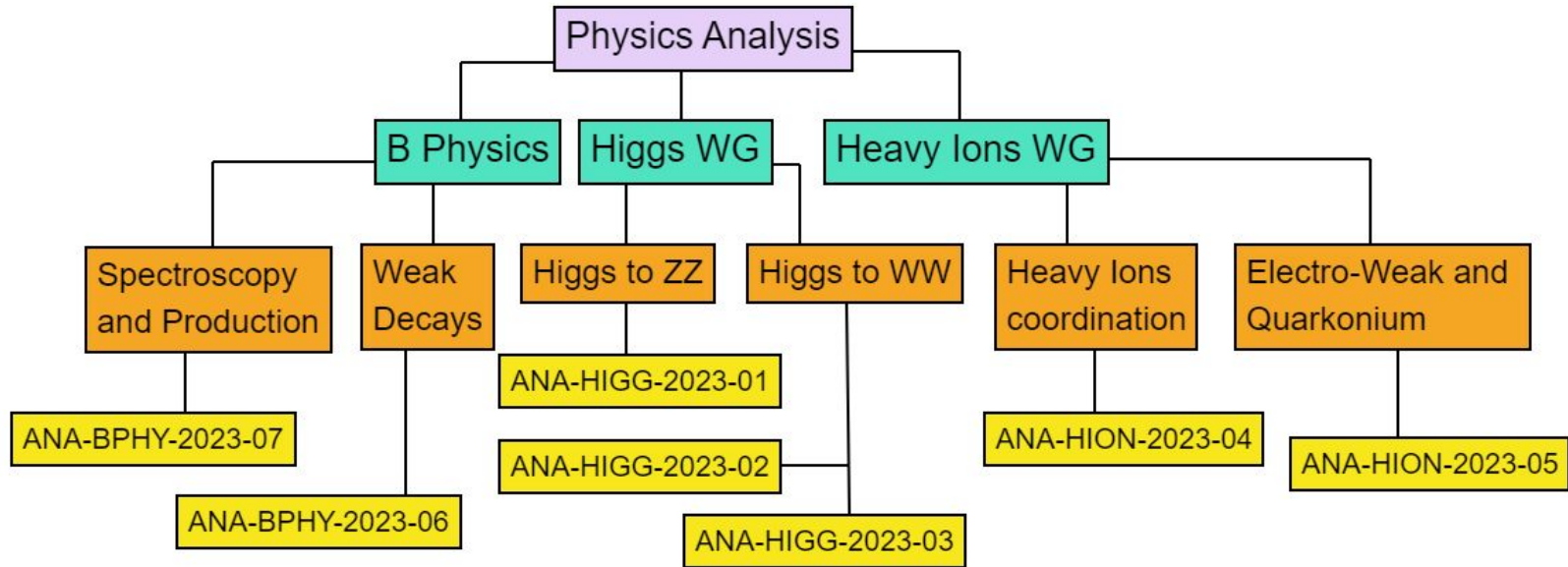


Fig 4: Example schematic of Physics Analysis Nomination hierarchy

The Challenge for Conference Talks

- Non-automated process
 - Exchange of spreadsheets between the responsible members
 - Manual actions from the ATLAS-Glance team
- The root activity did not have a holistic view of the process
- Prone to human error
- Not a good user experience

ACTIVITIES AND SCAB NOMINATIONS SYSTEMS

SCAB NOMINATIONS SYSTEM

**Developed to facilitate the ranking process of the ATLAS Speakers
Committee Advisory Board.**

Main functionalities

- Draft Nominations
- Seeding Nominations will automatically follow the activity hierarchy
- Tool for combining nomination draft
- Import the nominations from the previous round

Scabber confirmation

Select below the nominees you wish to apply the Scabber changes to. [Statistics](#)

Search: Niklaus

<input type="checkbox"/>	Name	Priority	Comment	Edit
<input type="checkbox"/>	NIKLAUS MOREIRA DA ROCHA RODRIGUES, Carolina	CSS: 4 JMX: 2 EXCO: 3 EXOT: 3 → 2	EXOT Comment (JMX); Another comment (EXCO); Root Comment (EXOT); Last Comment (CSS)	

Fig 5: Scabber algorithm modal in SCAB Nomination System

Improvements to the Nomination process

- Information centralized
- Automation of a complex process
- Monitoring of seeding activities statuses
- Possibility of providing on-the-fly statistics
- Functionalities to guarantee that all the contributing members participate in the selection process

Seeding activities statuses



Fig 6: Seeding activities statuses modal

Statistics

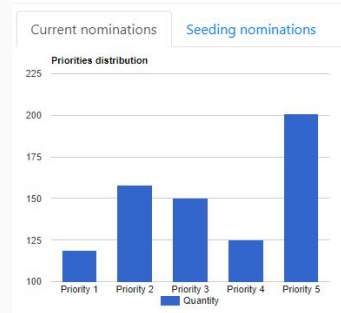


Fig 7: Priority distribution modal

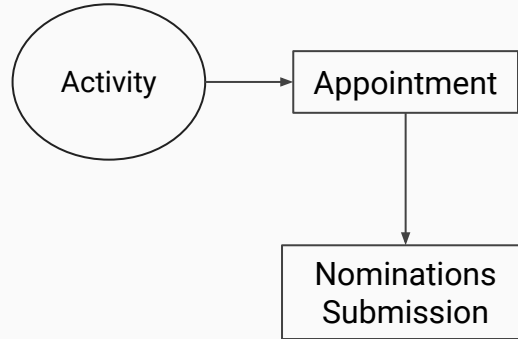
ACTIVITIES SYSTEM

Developed to centralize the Activities information and ease the management of the hierarchy

Improvements to the Activity management

IN THE PAST

one-to-one relationship

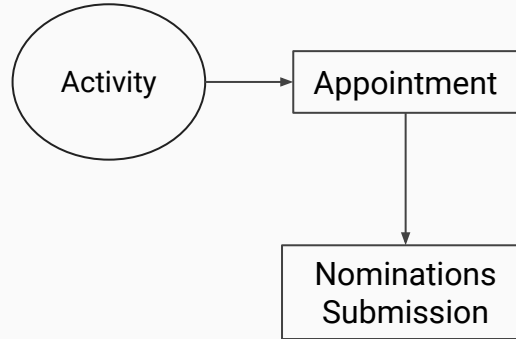


CURRENTLY

Improvements to the Activity management

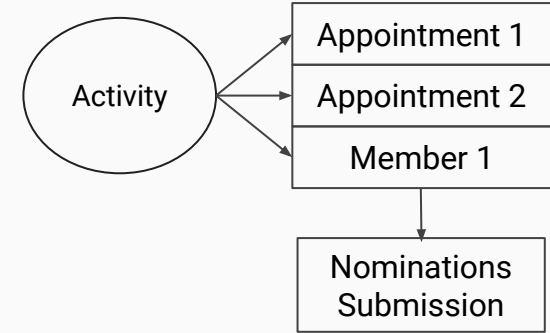
IN THE PAST

one-to-one relationship



CURRENTLY

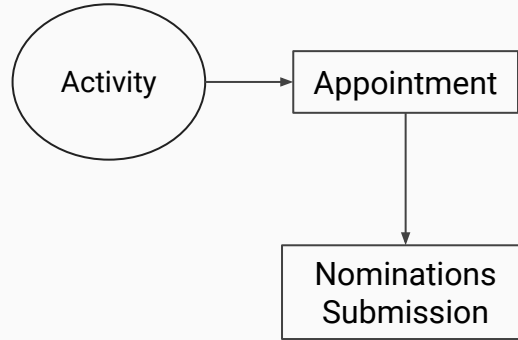
one-to-many relationship



Improvements to the Activity management

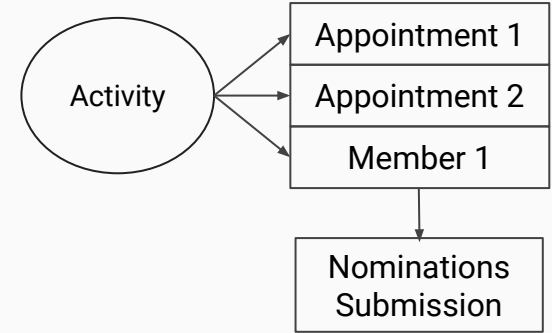
IN THE PAST

one-to-one relationship

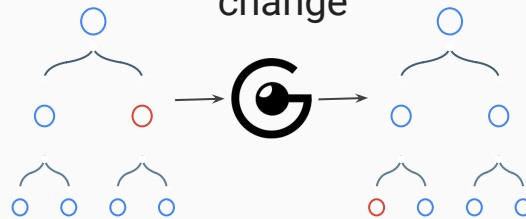


CURRENTLY

one-to-many relationship



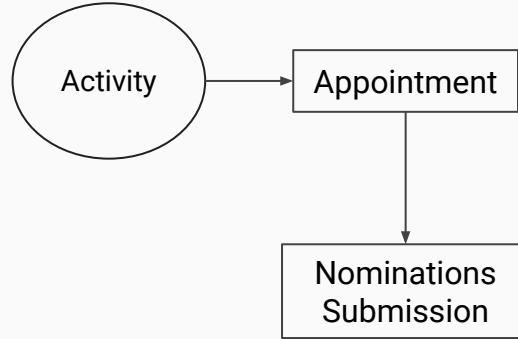
Glance team performs the change



Improvements to the Activity management

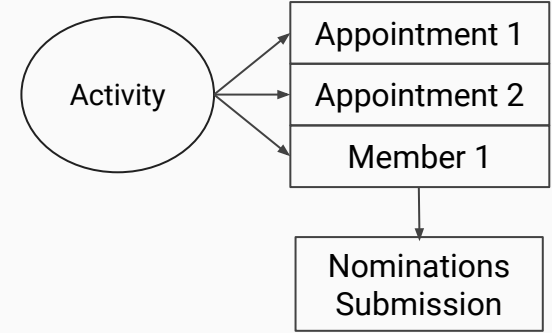
IN THE PAST

one-to-one relationship

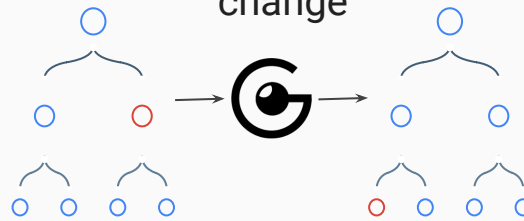


CURRENTLY

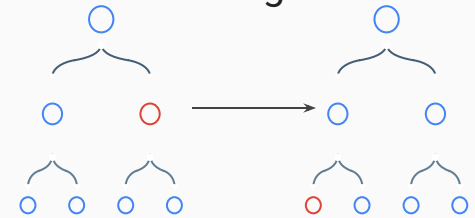
one-to-many relationship



Glance team performs the change



User performs the change



Main functionalities

The screenshot displays the ATLAS Activities System Main Page. The interface includes a top navigation bar with 'ATLAS | Activities' and a search field. A left sidebar lists various activity categories, with 'PHY - Physics Analysis' selected. The main content area shows details for the 'Active PHY - Physics Analysis' activity, including an 'EDIT' button, a link to the 'SCAB NOMINATIONS PAGE', a description, type, and a list of 'Allowed Actions' (Run scabber, Submit nominations) and 'Responsible Appointments' (Physics Coordinator, Physics Deputy Coordinator). Callouts highlight these features: 'Easy visualization of the tree' points to the sidebar; 'Easy editing' points to the 'EDIT' button; 'Integration with the SCAB Nominations System' points to the 'SCAB NOMINATIONS PAGE' link; and 'Activity responsible Appointments and members' points to the 'Responsible Appointments' list.

ATLAS | Activities Search For Activity

SPKS - Spokesperson

UPG - Upgrade

PC - Physics Coordination

PHY - Physics Analysis

BPHY - BPHY

BPCO - B physics coordination

WEDE - Weak Decays

SPPR - Spectroscopy and Produc

JPSI - J/Psi Inactive

ONIA - Onia production

Active PHY - Physics Analysis EDIT

Description Physics Analysis

Type Physics

Allowed Actions Run scabber Submit nominations

Responsible Appointments

Physics Coordinator

Physics Deputy Coordinator

SCAB NOMINATIONS PAGE

Easy visualization of the tree

Easy editing

Integration with the SCAB Nominations System

Activity responsible Appointments and members

CERN Accelerating science

The GLANCE project

Fig 8: Activities System Main Page

TECHNICAL DETAILS

Backend Technical Context

- Goal:
 - Maintainability
 - Testability
 - New functionalities easily implemented

Backend Technical Context

- Goal:
 - Maintainability
 - Testability
 - New functionalities easily implemented



DOMAIN DRIVEN DESIGN (DDD)

Divide the code into **bounded contexts**, structuring the software around its **core domain**

Domain, Infrastructure and Application

Backend Technical Context

GOALS

- Introduction of new features → New bounded contexts or update an existing one
- Testability → Test the layers separately
- Maintainability → Understandable and decoupled code

Backend and Frontend Communication

- Use of HTTPS protocol to interact with web resources
- Stateless communication
- The set of methods are fixed: GET, POST, PUT, DELETE and PATCH

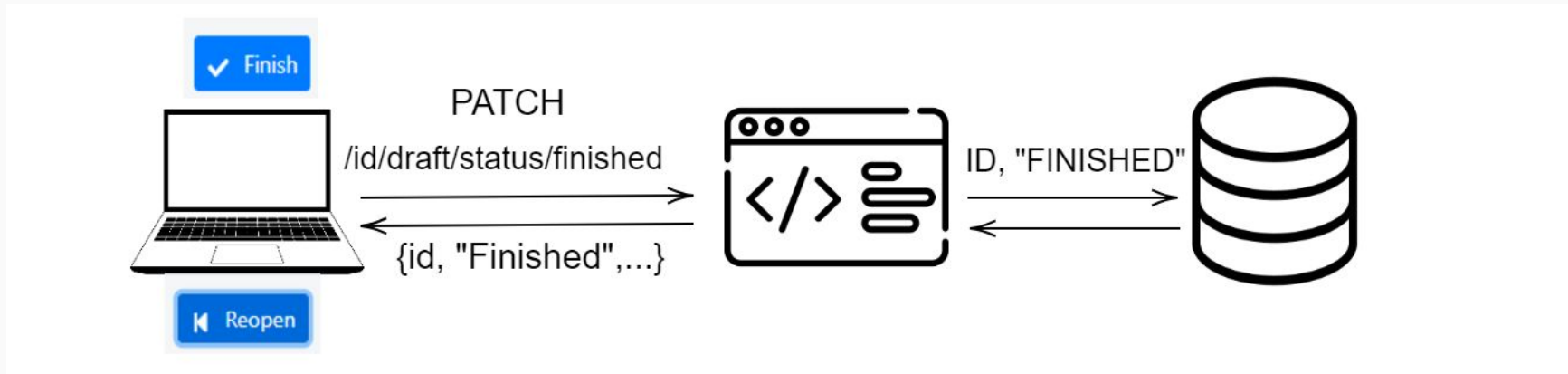


Fig 9: Example of communication using https request in the SCAB Nominations System

NEXT STEPS

SCAB NOMINATIONS SYSTEM

- Performance improvements → implementation of SQL Repositories

ACTIVITIES SYSTEM

- Integration with other ATLAS-Glance Systems

REFERENCES

[1] THE ATLAS EXPERIMENT. ATLAS Experiment, 2023. Available in: <https://atlas.cern/about>

[2] ATLAS INSTITUTIONS. ATLAS Experiment, 2023. Available in: <https://atlaspo.cern.ch/public/institutions/>

[3] GLOSSARY. ATLAS Glance Team, 2024. Available in: <https://confluence.cern.ch/pages/viewpage.action?pageId=187401197>

[4] Vernon, Vaughn. *Implementing domain-driven design*. Pearson education, 2013.

[5] Evans, Eric. *Domain-driven design: tackling complexity in the heart of software*. Addison-Wesley Professional, 2004.

CONCLUSION

SCAB NOMINATIONS SYSTEM

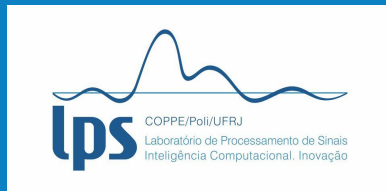
- Proven to be a valuable asset in the speaker selection process
- Performance improvements still need to be made

ACTIVITIES SYSTEM

- Improved the management of the Activities
- Showcases the advantages of using the Domain-Driven Design approach

THANK YOU!

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EXTRA SLIDES

SCAB Nomination System integration with other systems

- Analysis Contact Nominations: Analysis Team automatically imported
- Addition of members:
 - By name → Membership System
 - By the working group of one or more publications → Publication Tracking System
 - By choosing the contributors of an Operation Task → ATLAS OTP database
- Member's nominations displayed in their profile

Scabber Algorithm

- In use since before the SCAB Nominations System was created
- Logic:
 - **Combination:** the final priority of each member is set to the best priority given and the comments are concatenated indicating which seeding activity or analysis contact it came from
 - **Promotion:** when nominated by at least two groups with the same priority and this priority is the highest one, the final priority is increased 1

Architecture - Activities System

Ports and Adapters Architecture

- Separate the core domain logic from external systems
- Ports: how the core domain interacts with the external systems
- Adapters: connect the ports to the external systems

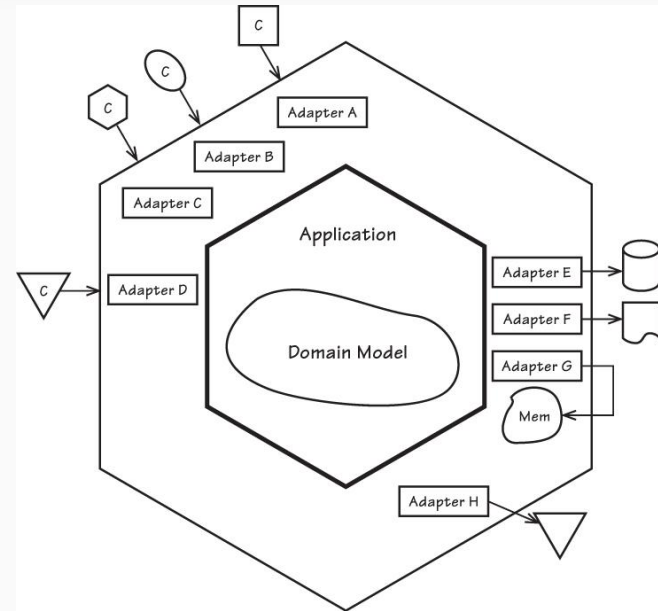


Fig 10: Hexagonal Architecture schematic from Vaughn Vernon's *Implementing Domain-Driven Design* (fig. 4.4)